

Ser. No. 09/759,766
Attorney Docket No. 2359-00

In the claims:

Claims 3, 7, 8, 9, and 11 have been withdrawn pursuant to an election/restriction requirement.

Please amend claims 1-14 and 18-20 as follows:

1. (Currently Amended) An apparatus for augmenting near vision accommodation by contraction of the ciliary muscles of the eye by reinforcement of at least one set of natural zonular fibers, the apparatus comprising at least one bridge configured to be affixed to the at least one set of natural zonular fibers, wherein said natural zonular fibers comprise a means for transmitting a first contraction force from the ciliary muscles and said at least one bridge affixed to the at least one set of natural zonular fibers comprises a means for transmitting a second contraction force, wherein said second contraction force comprises an augmented first contraction force for constricting the natural crystalline lens.

2. (Currently Amended) The invention apparatus of claim 1 wherein said at least one bridge comprises a symmetric distribution of said at least one bridge.

3. (Withdrawn, Currently Amended) The invention apparatus of claim 1 wherein said at least one bridge comprises a ring.

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4. (Currently Amended) The invention apparatus of claim 1 wherein said at least one bridge comprises a biocompatible material.

5. (Currently Amended) The invention apparatus of claim 1 wherein said at least one bridge comprises a synthetic muscle.

6. (Currently Amended) The invention apparatus of claim 5 wherein said synthetic muscle comprises a member from the group consisting of polymer hydrogels, polymer gels, polymethylmethacrylate (PMMA), polypropylene, silicone polymers, polysilicones, light curable polymeric melts, electroactive ionic polymers and plastic.

7. (Withdrawn, Currently Amended) The invention apparatus of claim 5 wherein said synthetic muscle comprises an electroactive ionic polymer artificial muscle.

8. (Withdrawn, Currently Amended) The invention apparatus of claim 7 wherein said electroactive ionic polymeric artificial muscle comprises a shape memory alloy (SMA).

9. (Withdrawn, Currently Amended) The invention apparatus of claim 7 wherein said electroactive ionic polymeric artificial muscle comprises a shape memory polymers (SMP) artificial muscle.

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10. (Currently Amended) The invention apparatus of claim 5 wherein said synthetic muscle comprises an active material.

11. (Withdrawn, Currently Amended) The invention apparatus of claim 10 wherein said active material comprises a member from the group consisting of inflatable mini-balloons, deployable structural mini-bridges, electromagnetically deployable solenoidal structures, piezocerams, piezopolymers, electroactive polymers eletrostrictive polymers, light curable polymers, magnetorheological materials and electrorheological materials.

12. (Currently Amended) A method of correcting presbyopia and hyperopia on demand, the method comprising the steps of:

- a. affixing at least one bridge in and around at least one set of natural zonular fibers of the eye;
- b. transmitting a first contraction force from the ciliary muscles to the at least one set of natural zonular fibers;
- c. augmenting the contraction force by and the at least one bridge affixed to the at least one set of natural zonular fibers comprising a second augmented contraction force; and
- e d. constricting the natural crystalline lens by the augmented contraction force from the transmission of the contraction force from the ciliary muscles to the at least one set of natural zonular fibers and the at least one bridge.

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13. (Currently Amended) The method of claim 12 wherein the an eye lens comprises an implanted lens.

14. (Currently Amended) A method of implanting at least one bridge in an eye for augmenting near vision accommodation, the method comprising the steps of:

a. relaxing the ciliary muscle; and
b. affixing the at least one bridge in and around at least one set of zonular fibers for providing an augmented contraction force from the at least one set of natural zonular fibers and the at least one bridge for constricting the natural crystalline lens.

15. (Currently Amended) The method of claim 14 wherein the step of affixing the at least one bridge to at least one set of natural zonular fibers comprises affixing the at least one bridge to the canal of Hannover.

16. (Currently Amended) The method of claim 14 wherein the step of affixing the at least one bridge to at least one set of natural zonular fibers comprises implanting the at least one bridge.

17. (Original) The method of claim 16 wherein the step of implanting the at least one bridge further comprises implanting the at least one bridge to span the internal surfaces of the ciliary muscle and the ciliary processes to the surface of the lens capsule.

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18. (Currently Amended) An apparatus for augmenting near vision accommodation by contraction of the ciliary muscles of the eye by reinforcement of natural zonular fibers, the apparatus comprising at least three circularly distributed bridges configured to be affixed symmetrically to the natural zonulesular fibers wherein said at least three bridges are configured to span at least a portion of the internal surfaces of the ciliary muscles and the ciliary processes to the surface of the eye lens capsule, wherein said natural zonular fibers comprise a means for transmitting a first contraction force from the ciliary muscles and said at least three circularly distributed bridges affixed to the natural zonular fibers comprises a means for transmitting a second contraction force, wherein said second contraction force comprises an augmented first contraction force for constricting the natural crystalline lens.

19. (Currently Amended) The invention apparatus of claim 18 wherein said at least three bridges comprise synthetic muscles.

20. (Currently Amended) The invention apparatus of claim 19 wherein said synthetic muscles comprises a member from the group consisting of light curable polymer melts and polymer gels.

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